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## PURCHASING POWER PARITIES FOR CENTRAL AND EASTERN EUROPE: A COMPARISON IN REAL TERMS OF GDP FOR 39 COUNTRIES

The 1993 European Comparison Programme (ECP) was conducted jointly by the Austrian Central Statistical Office, Statistics Finland, Eurostat, OECD and the United Nations Economic Commission for Europe. The objective was to establish purchasing power parities that allow a comparison in real terms of the Gross Domestic Product (GDP) which is the main indicator of economic activity. The results for the 34 countries participating in the 1993 ECP as well as for the 5 non-European OECD countries are presented in the attached table. Results are expressed relative to Austria, since this country was used as a bridge country between Western and Eastern countries for the comparisons.

The use of the exchange rate for international comparison of economic aggregates does not allow a real comparison of the volume of goods and services produced and used in different countries. GDP per capita converted into a common currency (Austrian Schilling) using exchange rates, is considerably higher in Japan or in Denmark than in the Russian Federation or in Moldova. But this difference corresponds not only to a higher volume of goods and services but also to a higher general price level in western countries. The calculation of purchasing power parities makes it possible to eliminate this price level difference from the comparison and thus obtain a real volume comparison between countries.

The purchasing power parities between currencies are obtained using the price ratios between the different countries for a basket of goods and services both comparable and representative. The individual price ratios are aggregated, according to well defined criteria, up to the GDP global parity.

The table starts by presenting for the different countries the exchange rates and the purchasing power parities. The parity/exchange rate ratio is an index of price levels, in itself an important indicator. It measures the relation between the price level of a given country and Austria. This reveals differences between the various price levels of 61 (Portugal) to 113 (Denmark) for EU countries, of 46 (Turkey) to 139 (Japan) for OECD countries and of 8 (Belarus) to 58 (Slovenia) for central and eastern European countries, demonstrating the difficulties of comparing the economies of different countries using official exchange rates.

Another significant indicator for international comparisons is the per capita GDP index. It represents the relation between the per capita GDP of each country and the per capita GDP of Austria. It is worth noting that the index can be significantly different according to whether exchange rates or purchasing power parities are used.

Thus, comparing for example Finland and Estonia, the per capita indices change from 73 for Finland and 5 for Estonia to 81 for Finland and 20 for Estonia by using respectively the exchange rates and the purchasing power parities as a conversion factor. The same thing happens when comparing for example Italy and Romania (per capita value indices: 75 and 5; per capita volume indices: 92 and 19), Austria and Slovenia (per capita value indices: 100 and 28; per capita volume indices: 100 and 48), Greece and Bulgaria (per capita value indices: 38 and 6; per capita volume indices: 56 and 22), Germany and Poland (per capita value indices: 103 and 10; per capita volume indices: 97 and 24). The most extreme example is to compare Japan and Moldova: the GDP per capita is in

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nominal terms (using exchange rates) more than one hundred times higher in Japan than in Moldova, whereas in real terms (using purchasing power parities) the ratio is less than ten times. Of course the more similar the economies are the more meaningful the comparison is and so any direct comparison between two such different economies as Japan and Moldova is rather hazardous. Nevertheless, this result alone shows the need to have purchasing power parities as a tool to obtain real volume comparisons between countries.

Volume indices should not be used to establish a strict ranking of countries; in fact they only give an indication of the comparative order of magnitude (in volume terms) of economic activity in each country in relation to others. Thus, when comparing per capita volume indices for Sweden and the United Kingdom (88 and 89 respectively), the conclusion which can be drawn is that per capita GDP in volume terms in these two countries is of the same order of magnitude, and that a comparison of the per capita value indices for these two countries computed using exchange rates (93 and 71 respectively) gives a biased view, due to the difference in price levels.

**NOTE**: The results presented here are subject to sampling and other errors; small differences between the measures are unlikely to be statistically significant.
Both exchange rates and purchasing power parities are annual averages. All these data are shown with four significant digits.

**To know more about:**

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# Comparison in real terms for 39 countries

# GDP RESULTS - 1993

| eurostat | Exchange rate: 100 Austrian Schilling =... National currency units | Purchasing power parities: 100 Austrian Schilling =...National currency units | Price level index Austria = 100 | Per capita value index (based on exchange rates) Austria = 100 | Per capita volume index (based on PPP) Austria = 100 |
|---|---|---|---|---|---|
| Belgium | 297.1 | 265.8 | 89 | 92 | 103 |
| Denmark | 55.74 | 62.93 | 113 | 114 | 101 |
| Germany | 14.21 | 15.08 | 106 | 103 | 97 |
| Greece | 1971 | 1347 | 68 | 38 | 56 |
| Spain | 1095 | 857.0 | 78 | 54 | 69 |
| France | 48.69 | 47.53 | 98 | 96 | 98 |
| Ireland | 5.872 | 4.678 | 80 | 58 | 73 |
| Italy | 13510 | 10960 | 81 | 75 | 92 |
| Luxembourg | 297.1 | 286.7 | 97 | 138 | 143 |
| Netherlands | 15.97 | 15.22 | 95 | 89 | 93 |
| Austria | 100 | 100 | 100 | 100 | 100 |
| Portugal | 1383 | 848.3 | 61 | 38 | 61 |
| Finland | 49.15 | 43.81 | 89 | 73 | 81 |
| Sweden | 66.95 | 71.13 | 106 | 93 | 88 |
| United Kingdom | 5.725 | 4.599 | 80 | 71 | 89 |
| Iceland | 581.1 | 599.6 | 103 | 101 | 98 |
| Norway | 60.98 | 64.27 | 105 | 105 | 100 |
| Switzerland | 12.70 | 15.41 | 121 | 146 | 120 |
| Turkey | 94400 | 43160 | 46 | 13 | 28 |
| Australia | 12.64 | 9.76 | 77 | 70 | 91 |
| New Zealand | 15.91 | 10.9 | 69 | 55 | 81 |
| Japan | 955.8 | 1329 | 139 | 148 | 106 |
| Canada | 11.09 | 9.11 | 82 | 83 | 102 |
| USA | 8.595 | 7.21 | 84 | 107 | 127 |
| Poland | 156000 | 62530 | 40 | 10 | 24 |
| Czech Rep. | 250.6 | 75.49 | 30 | 13 | 44 |
| Hungary | 790.7 | 415.7 | 53 | 16 | 31 |
| Russian Fed. | 7644 | 1665 | 22 | 6 | 26 |
| Romania | 6524 | 1717 | 26 | 5 | 19 |
| Belarus | 21090 | 1372 | 7 | 2 | 26 |
| Bulgaria | 238.2 | 60.69 | 25 | 6 | 22 |
| Croatia | 30640 | 16770 | 55 | 11 | 20 |
| Slovak Rep. | 264.6 | 79.54 | 30 | 9 | 30 |
| Slovenia | 972.6 | 563.1 | 58 | 28 | 48 |
| Ukraine | 41770 | 6223 | 15 | 3 | 17 |
| Moldova | 14.29 | 1.655 | 12 | 1 | 12 |
| Estonia | 113.6 | 27.71 | 24 | 5 | 20 |
| Latvia | 5.820 | 1.333 | 23 | 4 | 16 |
| Lithuania | 34.36 | 5.835 | 17 | 3 | 19 |